DSCI 4330 – Enterprise Applications of Business Intelligence
Spring 2024

“What I cannot create, I do not understand.”
Richard Feynman

Course Information
Course: DSCI 4330.002
Course Name: Enterprise Applications of Business Intelligence
Class Location: BLB 140
Time: Tu 6:30 pm – 9:20 pm
Website: http://learn.unt.edu

Instructor Contact Information
Instructor: Dr. Mahdi Ahmadi
Office: BLB 331C
Phone: 940-565-2946
Email: Mahdi.Ahmadi@unt.edu
Office Hours: Mo 12:30 pm – 2:00 pm
Tu 10:00 am – 12:30 pm
or by appointment
Zoom link: https://unt.zoom.us/j/3579223579

Course Description
Ever wondered how decision-makers leverage data analytics to enhance their business strategies? Interested in understanding the ins and outs of business analytics at the enterprise level? Explore the realm of business intelligence and analytics through this course. This course delves into the value of business intelligence and analytics in steering small and large enterprises. We will demystify the concepts, tools, platforms, systems, and technologies driving enterprise-level business intelligence and analytics. What exactly does a business intelligence analyst do, and how can they address real-world business challenges? These are the questions we'll answer together. Through real-world case studies, hands-on analysis of actual or simulated enterprise data, and engaging projects, you'll gain practical insights into solving business problems. Whether you're honing your skills as a future business intelligence analyst or a manager eager to harness the power of data, this course offers a comprehensive exploration of the dynamic field of enterprise-level business intelligence and analytics.
Learning Objectives

1- Gain a comprehensive understanding of key business intelligence (BI) concepts, exploring how data analysis and insights contribute to strategic decision-making at the enterprise level.

2- Acquire hands-on experience with a variety of BI tools, platforms, and technologies, developing the skills needed to implement and navigate systems crucial for enterprise-level analytics.

3- Explore the principles of data preparation, data process pipelining, and data warehousing, learning how to design, build, and maintain repositories that enable efficient storage and retrieval of vast datasets critical for informed decision-making. Develop a solid foundation in SQL, empowering you to query, manipulate, and analyze data effectively, a fundamental skill for any professional engaging in business intelligence and analytics.

4- Learn predictive and prescriptive analytics methodologies, understanding how to leverage historical data to forecast trends and anticipate future business outcomes, enhancing your strategic planning capabilities.

5- Explore the challenges and opportunities presented by big data, discovering how to integrate and analyze large datasets using cutting-edge technologies, preparing you for the demands of modern business environments.

6- Understand the managerial implications of BI implementation, including ethical considerations, organizational impact, and effective communication of data insights to stakeholders, ensuring you are equipped to navigate the broader landscape of BI in business.

Textbook, Tools, and Resources

Textbook

Business Intelligence, Analytics, and Data Science: A Managerial Perspective on Analytics, 4th edition, 2018 by Ramesh Sharda, Dursun Delen, and Efraim Turban, Publishers: Pearson Prentice Hall.

I may also post educational videos, scholarly papers, blog posts, articles, and other materials on Canvas. Students should check their Canvas account regularly for additional materials.

Software

This is a course on enterprise applications of business intelligence. We will introduce and use several tools to learn and practice different business intelligence and data analytics components and technique. Students are free to choose their tools, but I would recommend having the following applications up and running on your computers: MS Excel, Tableau (student or public version), Power BI (cloud version through UNT account), and RapidMiner Studio. Students who are interested in using a programming language may use R or python.

Generative AI (ChatGPT, Google Bard, etc.)

Generative AI is one of the most important technological innovations of our time and will change the future of data analytics, business processes, education, and the economy. In this course you will have opportunities to practice working with ChatGPT (or similar platforms) to solve some of the assignments. I will give you specific instructions on where and for what purpose to use ChatGPT for the assignments.
**Delivery Method and Technology Requirements**

The course will be delivered in person. Active class participation is crucial to the learning and success of the students. Active participation means participation in the class practices and discussions, presenting your team project in class, and engaging in constructive dialogues. I will deliver a lecture in each class, and the rest of the class will be discussions, students’ presentations, case studies, and hands-on practices. We will rely heavily on Canvas for the delivery of materials, practices, assignments, exams, and projects. It is students' responsibility to check their Canvas account and email regularly.

A laptop is required during all classes and exams. We will use a variety of analytical and data tools in the class. It is the student’s responsibility to have a working and functional laptop during class time and exams. Laptops can be checked out from the UNT Library. You can remotely connect to the UNT MyLab virtual computer lab and use the tools. To access UNT MyLab go to [https://mylab.unt.edu/](https://mylab.unt.edu/)

**Attendance Policy**

Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the professor and the instructional team prior to being absent, so you, the professor, and the instructional team can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and instructional team if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

**Course Schedule**

The following table shows the tentative schedule for the course. **Dates, topics, and activities are subject to change.**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Subject</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16-Jan</td>
<td>Course syllabus + Introduction</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>23-Jan</td>
<td>Descriptive Analytics I: data, statistics, visualization</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>3</td>
<td>30-Jan</td>
<td>Descriptive Analytics I continued</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>4</td>
<td>6-Feb</td>
<td>Descriptive Analytics II: data warehousing and BI</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>5</td>
<td>13-Feb</td>
<td>Descriptive Analytics II continued</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>6</td>
<td>20-Feb</td>
<td><strong>Exam 1 &amp; Project First Milestone</strong></td>
<td>Chapters 1-3</td>
</tr>
<tr>
<td>7</td>
<td>27-Feb</td>
<td>Predictive Analytics I: Data Mining Process, Methods, Algorithms</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>8</td>
<td>5-Mar</td>
<td>Predictive Analytics I continued</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>9</td>
<td>12-Mar</td>
<td><strong>Spring Break -- No Class</strong></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>19-Mar</td>
<td>Predictive Analytics II: Text, Web and Social Media Analytics</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>11</td>
<td>26-Mar</td>
<td>Predictive Analytics II continued</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>12</td>
<td>2-Apr</td>
<td><strong>Exam 2 &amp; Project Second Milestone</strong></td>
<td>Chapters 4-5</td>
</tr>
<tr>
<td>13</td>
<td>9-Apr</td>
<td>Prescriptive Analytics: Optimization and Simulation</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>14</td>
<td>16-Apr</td>
<td>Big Data Concepts and Tools</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>15</td>
<td>23-Apr</td>
<td>Future Trends, Privacy and Managerial Considerations in Analytics</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>16</td>
<td>30-Apr</td>
<td>Course Review and Project Presentations</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>7-May</td>
<td><strong>Final Exam &amp; Final Project Report</strong></td>
<td>Chapters 1-8</td>
</tr>
</tbody>
</table>
Grade Components
Grades will be based on student performance in the class, exams, group projects, and class participation.

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Points</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation and Assignments</td>
<td>300</td>
<td>30%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
<td>10%</td>
</tr>
<tr>
<td>Exams</td>
<td>350</td>
<td>35%</td>
</tr>
<tr>
<td>Business Intelligence Project</td>
<td>250</td>
<td>25%</td>
</tr>
</tbody>
</table>

There will be NO extra credit in the course.

Class Participation and Assignments
Students’ active participation in the class is a very critical part of the learning process and a large portion of your grades in this course. Throughout the course, I will give group assignments for which students should work together and present their findings and results in the class. Assignments include analyzing case studies in the textbook, answering the questions, analyzing business data, and presenting the results. This course is an opportunity for you to not only analyze data to extract business insights and find solutions but also to communicate and ‘sell’ your ideas and findings. There will be 5 presentation assignments all of which must be done as team projects. Read Late Work policy section.

Quizzes
The purpose of quizzes is to assess and establish your learning in a short period and prepare you for the mid-term and final exams. All quizzes will be open-book and should be taken individually. There will be 5 quizzes throughout the semester.

Exams
Three closed-book and closed-note exams will be given (two exams in the middle of the semester and a final exam). The final exam composes 15% of your final grade and will be a comprehensive evaluation of everything you’ve learned in this course. The dates of the exam are shown in the class schedule table. All exams should be taken in the classroom during the normal class meeting time through LockDown Browser. The final exam will be given on May 7 at 6:30 pm (following the university Final Exam Schedule). Students will be individually tested over all materials covered in the lectures, course readings, assignments, case studies, and tutorials.

Make-up exams will NOT be given in general. If you have a UNT-authorized valid and verified excuse for missing an exam, please communicate it with me at least 48 hours before the exam date. Requests for a make-up AFTER the exam date will only be accepted to review within 48 hours and it requires extraordinary circumstances with valid and verified documents. No request will be reviewed after 48 hours.

Business Intelligence Project
This is an opportunity for students to work in a group to solve a real business analytics problem with the skills they learn in this course. Students can choose their own topic and data. There will be two milestones (indicated in the class schedule table) to assess and review the progress of the project. Detailed instructions and rubrics will be posted on Canvas after the semester starts.
Final Grades Policy

<table>
<thead>
<tr>
<th>Final score</th>
<th>Final letter grade</th>
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</thead>
<tbody>
<tr>
<td>90% &lt;</td>
<td>A</td>
</tr>
<tr>
<td>80% - 89%</td>
<td>B</td>
</tr>
<tr>
<td>70% - 79%</td>
<td>C</td>
</tr>
<tr>
<td>60% - 69%</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 60%</td>
<td>F</td>
</tr>
</tbody>
</table>

Please read Instructor Policies and UNT Policies sections on academic integrity carefully.

Grade Disputes
Students have the right and are welcome to review assignments and exams after grading to improve their understanding of course material and check for the presence of grading errors. This review must be conducted within 7 days after the grades of the assignment or exam are posted on Canvas. All requests should be sent directly to my UNT email only with a clear and concise explanation of why and where you believe there has been a grading error. Grade appeals are to ensure mistakes do not negatively impact your grades. They are not intended to ensure you receive your desired final grade. Requests for blanket reconsideration of your graded deliverables will not be reviewed or answered. No changes to grades will be made after this period.

Instructor Policies

Class Code of Conduct
Student behaviors that interfere with the instructor's ability to conduct a class or other students' opportunity to learn are unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classrooms, labs, discussion groups, field trips, etc.

As a courtesy to the class, your classmates, and your instructor, you are asked to set your cell phones to vibrate. In the case of a personal emergency that requires you to answer your phone, you are asked to step out of the classroom.

Academic Integrity
Ryan G. College of Business and I take academic integrity and honesty extremely seriously for all course activities such as quizzes, assignments, exams, and the term project. This course is an excellent opportunity to practice what is expected from you as a business professional regarding integrity, trust, and honesty. All students are required to maintain the highest standards of ethical and professional conduct when taking exams and doing assignments and the term project.
In this course, unless otherwise stated, individual work should be completed alone and using only resources explicitly outlined in the instructions. While external research may be permitted in assignment instructions, utilizing resources such as Chegg, Course Hero, and similar websites is not appropriate and is expressly forbidden. What may appear to be a relatively minor step outside the bounds of acceptable behavior can have a monumental impact on success within your academic program and beyond.

Students caught cheating or plagiarizing will receive a zero for that particular assignment or exam for the first time. Engaging in such behavior for the second time will result in an F for the course, with absolutely no exception. Additionally, the incident may be reported to the Dean of Students, who may impose further penalties or sanctions ranging from admonition to expulsion from the university.

Using generative AI platforms for doing the assignments is allowed only if it is clearly cited and explained in the assignment by the professor. This means, if you are asked to use ChatGPT to do an assignment, you are allowed to do it and you must include all the prompts and answers in the submitted documents.

Read the definition of cheating by the UNT carefully: https://policy.unt.edu/policy/06-003

**Communication**
Canvas is the primary channel for announcements, changes in due dates or the syllabus, new materials, grades, etc. It is the student’s responsibility to check their Canvas account for updates.

If a student wants to initiate communication outside of Canvas, they should do it with their UNT email: Mahdi.Ahmadi@unt.edu. Emails from non-UNT email systems will not be read. You can expect my response within 24 hours. Virtual appointments will be held on Zoom. In your email subject like you must always mention course code + section (DSCI 4520.001) and in the body of the email you should clearly and concisely explain what it is that you are asking. This is an opportunity for you to practice writing professional emails: be clear, polite, concise, and to the point.

I value your feedback greatly and I strongly encourage you to not hesitate to communicate with me about any issues that you may have or see in the course. To make it easier, I will create an anonymous electronic drop box where you can leave your suggestions, opinions, and questions anonymously. Details will be posted on Canvas.

**Changes in the Syllabus**
The materials presented in this syllabus are tentative. I reserve the right to change and improve the materials and requirements as the semester unfolds, with sufficient announcements concerning exams, and assignments.

**Late Work**
Only assignments that are submitted before the due date are considered to be graded without a deduction for late submission. If you submit an assignment within 24 hours of the due date, you will lose 20% of the full credit, and if you submit it after the first day and before the third day after the due date your grade starts from 50% of the full grade. After three days, you will receive a zero, with no exceptions, unless you have a university-authorized excused absence and provides verified documentation 24 hours before the deadline.
University Policies and Other Important Information

**Academic Integrity Policy**
The University of North Texas promotes the integrity of learning and embraces the core values of trust and honesty. Academic integrity is based on educational principles and procedures that protect the rights of all participants in the educational process and validate the legitimacy of degrees awarded by the University. In the investigation and resolution of allegations of student academic dishonesty, the University's actions are intended to be corrective, educationally sound, fundamentally fair, and based on reliable evidence. Please read the full text of the UNT policy [here](#).

**Disability Accommodation Policy**
The University of North Texas (UNT or University) does not discriminate on the basis of disability in admission, treatment, or access to its programs or activities, nor in employment in its programs or activities. The University is committed to providing equal educational access for qualified students with disabilities in accordance with state and federal laws, including the Americans with Disabilities Act of 1990 as Amended, and Section 504 of the Rehabilitation Act of 1973. In addition, the University is committed to making all programs and activities sponsored by UNT accessible, as required by the Texas Accessibility Standards and the Americans with Disabilities Act Accessibility Guidelines. To this end, all academic units are willing to make reasonable and appropriate adjustments to the classroom environment and the teaching, testing, or learning methodologies in order to facilitate equality of educational access for persons with disabilities.

Please read the full text of the UNT policy [here](#). You can learn more about the UNT Office of Disability Access on their [website](#) or through their email (APPLY.ODA@UNT.EDU) or their phone number: 940-565-4323

**Academic Deadlines**
Dates of drop deadlines, final exams, etc., are published in the university calendar and the schedule of classes. Please make yourself aware of these dates.

**Emergency Notification and Procedures**
Eagle Alert is UNT's official, campus-wide emergency notification system for emergency events, inclement winter weather closures, or Tornado Warnings. Eagle Alert allows UNT administrators to quickly contact campus community members by phone, text, and email. Eagle Alert will also post to the Eagle Alert Twitter. In addition to receiving direct messages by phone and email, the system includes a feature called desktop override that takes control over most UNT-owned computers in offices, classrooms, and public spaces on campus. During the test or in the event of an emergency, computer screens, presentation screens, and digital signs will display a full-screen alert.

UNT faculty, staff, and students are automatically enrolled in Eagle Alert. Individuals should remember, however, that if their personal contact information changes, they should go to my.unt.edu (students/faculty) or my.untsystem.edu (staff) to update their information. Instructions for updating your information can be found [here](#).
Retention of Student Records
All university records must be retained and disposed of in accordance with state law and the university’s record retention schedule as approved by the Texas State Library and Archives Commission. Please read the full text of the UNT policy here.

Student Success
UNT endeavors to offer you a high-quality education and to provide a supportive environment to help you learn and grow. And, as a faculty member, I am committed to helping you be successful as a student. Here’s how to succeed at UNT: Show up. Find Support. Get advised. Be prepared. Get involved. Stay focused. To learn more about campus resources and information on how you can achieve success, go http://success.unt.edu/.

Incomplete Grade (I)
The grade of I (incomplete) is not given except for rare and very unusual emergencies, as per University guidelines. An I grade cannot be used to substitute for your poor performance in class. If you think you will not be able to complete the class satisfactorily, please drop the course.

Campus Closures
Should UNT close campus, it is your responsibility to check your official UNT e-mail account (EagleConnect) and Canvas to determine if your instructor plans to modify class activities, and how. This may include changing assignment due dates, rescheduling exams, holding online classes, etc.

Student Evaluation of Instruction
Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from UNT SPOT Course Evaluations with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. For additional information, please visit the SPOT website.